
Conclusions and Policy Recommendations

Section-I

8.01 Introduction

Before independence, the Indian economy was a typical colonial economy characterised by lack of development and no industrial base. In the initial years, the country struggled to overcome mass poverty and chronic unemployment. It also tried to bridge income inequalities, increase productivity and reduce its dependency on agriculture (Rosen, G., 1988). During the last six decades, India has achieved remarkable economic growth. It is visualised in rapidly rising GDP, increased employment and export growth which has been possible through industrial development in which, the fishing industry has played an important role.

The fishing industry and aquaculture has contributed to food security, employment generation, foreign exchange earnings, and poverty alleviation (Mruthyunjaya, 2003; Malhotra and Sinha, 2007). Presently, the industry contributes 1.2 percent share towards India's GDP, and occupies a prominent place in the economy. It provides livelihood to 15 million people, and earns foreign exchange to the tune of Rs 8363 crores per annum (Government of Gujarat, 2006 and Government of India, 2005). India is the fourth largest producer of fish in the world followed by China, Peru and Japan and the second largest producer of fresh water fishes followed by China. (FAO,2000).

8.02 Role of Fishing Industry in Economic Development

Many fishers live in the world's poorest countries where their communities are often marginalized and landless (World Bank, 2008). As fishing is the livelihood of last resort for 230 million poor fishermen in the world. Also, fish is the primary source of protein for over 1 billion people in the world. The global consumption of fish increased by 21% between 1992 and 2002. World fish

production was 133 million tonnes in 2002, a 35 % increase over the figure for 1991. Of this, US\$ 58 billion of fish was exported. The export value of world trade in fish is more than the combined value of net exports of rice, coffee, sugar and tea. According to the World Bank, Half of global fish trade comes from developing countries (World Bank, 2008).

Bizzarri, G. (2009) analyzed the correlation between ‘Fisheries and Economic Development’. According to him the fisheries sector usually makes a valuable contribution to economic development of coastal areas. The relative dispersion of coastal small-scale fisheries adds to maintaining economically viable rural communities and balancing the trend towards growing coastal urbanization. In addition to its direct contribution, the indirect multiplier effects of the fisheries sector on economic development are often significant through intrasectoral interactions (e.g. between capture fisheries and ancillary activities such as net-making, or between capture fisheries and aquaculture through the supply of fishmeal), as well as intersectoral interactions (e.g. between forestry and fisheries through the supply of timber for boat-building, or between agriculture and aquaculture through the supply of feed). The infrastructure developed for fisheries (feeder roads, landing sites and coastal havens, water-retaining ponds) tend to trigger further economic development in other sectors such as tourism or agriculture. He pointed out that “Fisheries should be properly developed today to ensure a bountiful future” (Bizzarri, G., 2009).

Apparently fisheries sector is small in terms of volume but it significantly contributes to national income, nutritional security, export earning and in fulfilling social objectives with a great promise to contribute further (Sinha V.R.P., 2005).

8.03 Review of Literature

Research studies on the Fishing Industry deal more with the biological and technological aspects, and less with the economics of it. Research studies have been undertaken in marine fishing, inland fishing, brackish and fresh water aquaculture and the socio-economic conditions of fishermen. However, no comprehensive study has yet been undertaken on the fish processing industry in

Gujarat, or even in India. According to K.P. Biswas, the lack of valid statistical and economic data has made planning unrealistic, and also makes it difficult to appraise the performance of fishery development projects. Due to lack of valid statistical data, it is difficult to formulate policies which will enhance and promote the fish processing industry. Therefore, an economic study of the fish processing industry in Gujarat is indispensable.

8.04 Rationale of Study

Fisheries promise to contribute a vital share to the global food basket. The present demand and supply gap is widening because of population growth, agriculture and industrial pollution, competing demands for water resources, man made changes in waterways and many other constraints. All of these may reduce potential growth in fisheries. The future is also uncertain due to unknown consequences of weather abnormality and global climatic change on fish habitats. To obviate or mitigate these adverse effects, pragmatic fisheries research is needed (Sinha, V.R.P., 2005).

Experts have also recommended that research in this area is an urgent need. The thrust areas and arguments for undertaking such a study are as follows:

- ✓ Fish processing, value addition, packaging, marketing and waste utilization are thrust area of research (Malhotra and Sinha, 2007).
- ✓ Research in packaging, and the conversion of low value fish to high value products (Malhotra and Sinha, 2007).
- ✓ Ravindra Dholakia studied the comparative economic growth experience of Gujarat in 17 sectors. He found that fishing is the weakest sector in Gujarat, where special attention needs to be focused to achieve better performance (Dholakia, R., 2007).
- ✓ Malhotra and Sinha carried out a SWOT analysis. They have mentioned that the lack of reliable data is one of the greatest weaknesses of this sector.' It makes it difficult to plan, execute and monitor any project in

absence of such data and leads to confusion in assessment of the situation (Malhotra and Sinha, 2007).

- ✓ Marine Fishing Policy has recommended research in fish processing in terms of waste utilization, packing and quality (Government of India, 2004).

It is reported that Indian fishery, particularly the processed fishery products are much cheaper than those of the countries in competition. Despite this, the exports are low from India compared to many other countries (NCAP, 2004). It is therefore pertinent to study the problems and prospects of this industry.

8.05 Objectives of the Study

The present study has been undertaken with the following objectives:

1. Identify problems of fish processing.
2. Attempt an assessment of the economics of fish processing.
3. Examine the relationship between fishing industry and the fish processing.
4. Assess whether fish processing units run at optimal levels from an economic point of view.
5. Explore the challenges faced in the marketing of fish by the processing industry.
6. Examine the government support system for the fish processing industry.
7. Suggest policy recommendations for prospects of fish processing.

8.06 Hypotheses

1. Fish processing industry is a labour-intensive industry and therefore generates employment.
2. Growth of fish processing industry leads to increase in foreign exchange.
3. Fish processing units run at optimum levels.

4. The adoption of quality standards has an impact on the performance of the fish processing units.

8.07 Research Methodology

8.07.1 Geographical Area

The area of study is Gujarat state. Primary data have been collected from all fish processing units of Gujarat state. All fish processing units of Gujarat are spread over in five major centres i.e. Veraval, Chorwad, Mangrol, Porbandar and Varvala.

8.07.2 Sampling technique

Sampling derived on the basis of multistage stratified sampling and sequential techniques. As per fish exporters association of India (Gujarat region), there are total 58 fish processing units in Gujarat. Initially 70% units have been selected with minimum one unit from each fish processing centre. Units have been selected from both E.U. and Non-E.U. in same ratio. But they were not sufficient to reach the facts. So, it was necessary to extend sample size 10%. Same problem had been faced again. Therefore, remaining 20% also have been compelled to include in the survey.

8.07.3 Period of Study

Secondary data has been collected since 1972-73 and onwards. This is because the Gujarat fish processing industry incepted during this year. Primary data relates to the year 2006-07.

8.07.4 Processing of Data

Initially the questionnaires were edited for coding. The edited questionnaires were then coded for tabulation. SPSS computer software was used for tabulating data. Various statistical tools used in analysis include correlation, regression, T-test, Chi-square test, One Way analysis of Variance, measures of central tendency, frequency statistics, descriptive statistics, growth rates, etc.

8.07.5 Chapter Scheme

The thesis is divided into eight chapters. Chapter One introduces the problem. Chapter Two deals with review of literature. Chapter Three examines the profile of fish processing units. Chapter Four deals with the economics of fish processing. Chapter Five looks at marketing in the fish processing industry. Chapter Six examines the interplay between the government and the fish processing industry. Chapter Seven deals with the problems and prospects of fish processing. Chapter Eight pertains to the conclusions and recommendations.

Major Findings of the Study of study are as follows.

8.08 Ownership Patterns

Pattern of ownership is the first important decision taken before establishing a business enterprise. It is an important managerial decision, affecting the success of an enterprise. The study found five ownership patterns among fish processing units in Gujarat: (1) Own (2) Hired (3) Partnership (4) Private limited (5) Public limited. A majority of the units were privately owned, partnership, and private limited. The choice of ownership was influenced by factors like capital needs, liability of investors, nature of business, size of a unit and government regulations.

8.09 Product Range

Profit of fish processing units depends on their product range, which were mainly four, viz. fin fishes, shrimp, cephalopods and surimi. The product range decision is taken on the basis of supply availability of these fishes. One way analysis of variance was carried out to identify the relationship between the products and turnover. Hence, it is important to identify the product that gives a guaranteed high turnover compared to others. Surimi and Crabsticks have the highest turnover, whereas Fin fishes have the lowest. It is useful to take product decision.

8.10 Turnover Variation

Turnover varies between 100 lakhs to 20,000 lakhs among fish processing units. This depends on number of fish items, number of value added products, destination countries, firm financial condition and skilled personnel. More than 60 percent of the fish processing units have a turnover of less than 1500 lakhs. Top 15 percent units have a market share of as much as 60 percent. Turnover can also be classified by locations. Data shows that Veraval has highest turnover. Regression analysis of relationship between installed capacity and turnover shows that as capacity utilised increases, the turnover from fish processing also increases. However, turnover does not increase proportionally. Correlation between skilled manager and turnover indicating that skilled manager and turnover is positively correlated. It indicates that turnover is higher in a fish processing unit that has a skilled manager.

8.11 Ownership of Processing Equipment / Facilities

Ten types of facilities are needed for establishing a fish processing unit, including equipment for processing, freezing, storage, transport, water tank, fishing boat, packing equipment, generator set, ice plant, computer/laptop. Most of these were generally owned by the units, indicating their robust economic condition.

8.12 Investment Requirement

It was found that on average, Rs 1092.83 lakhs were required to establish fish processing activity. Investment requirement depends on area of land, building and construction, type of machineries, number of vehicles, type of products and quality standard. Investment is not a big problem in fish processing activity, but knowledge is necessary.

8.13 Capital-Output Ratio

It is the relationship between capital and output in an industry or business, and is also called the ratio of net investment to increase in output. In 2006-07, the total investment in Gujarat fish processing was found to be Rs 633844 lakhs, and

it produced goods worth Rs 164336 lakhs. The fish processing capital-output ratio that year was 0.38.

8.14 Capital Co-efficient

This is the quantity of capital required per unit of capacity in an industry, expressed as ratios. It was found that an investment of Rs 633844 lakhs was required for 2476000 kg fish processing capacity, indicating that a capital requirement of Rs 6637 per kg fish processing capacity.

8.15 Employment Potential

An important assessment of an industry is its usefulness to society. The labor-intensive fish processing industry in Gujarat reportedly employed more than 12,000 people directly. Labour share is 90 percent in total employment. It was noticed that the number of labor employed was generally under reported, for fear of labour officers, especially in big organizations.

Regression analysis of relationship between turnover and employment shows that a positive relationship between turnover and employment. As turnover increases, employment also increases. However, employment does not increase proportionally. Regression analysis of relationship between investment and employment shows that positive relationship between investment and employment. As investment increases, the employment also increases. However, employment does not increase proportionally. One way analysis of variance was used to identify the relationship between product and employment. Hence, it is important to identify the products generating higher level of employment compared to others. It was found that Surimi and Crabsticks can employ more people than any other products.

8.16 Profitability

Profit is necessary for the survival and growth in every business. Profit is the total income minus total cost, and measures the net effectiveness of business effort. It is the premium that covers the cost of staying in business – replacement, obsolescence, market and technical risk and uncertainty. It ensures the supply of

future capital for innovation and expansion. Profits are essential as a means to end; they are not an end in themselves, although essential for the continuity and growth of the firm.

It was found that profit in the fish processing industry of Gujarat varied from Rs -20 to 112 per kg of fish processed. More than ninety percent of fish processing units reported that earning profit, whereas 6.9 percent reported loss. The reasons for loss were recession in overseas market, inaccuracy in raw-material purchasing, and competition. Loss was reported in a few items, in a few enterprises only. Otherwise, the average profit varies between Rs 3 in case of frozen cuttle / fillets, to 62 per kg in case of frozen lobster / lobster tails. Investment and average profit have a positive relationship. As investment increases, the average profit of fish processing also increases. But, the average profit does not increase proportionally.

8.17 Export and Profit

Why should a firm participate in international trade? A simple assumption could be that international markets offer better prices for the product as compared to the domestic market. What are the differences in domestic prices and international market prices? If there are price differences, does this increase profit of the firm? An attempt has been made here to answer these questions.

It was found that gross profit turned out to be Rs. 92.88 per kg in the domestic market whereas the same was Rs. 123.03 per kg from sales in the international market. Thus, net profit turns out to be Rs. 30.15 per kg. Hence, this additional profit from export is an incentive for the firms to produce for the international market.

8.18 Problems of Fish Processing in Gujarat

The study identified 13 different problems being faced by fish processing units, hampering the development of the fishing industry. In the survey, the fish processing units have ranked these problems in order of magnitude, indicating the intensity of each problem.

Some of the major problems highlighted by the fish processing industry are inadequate supply of raw material, inadequate infrastructure facilities, lack of adequate government support, inadequate finance and welfare measures etc.

Section-II

8.19 Policy Recommendations

In 2002, total world trade of fish and fish products increased to US\$ 58.2 billion, a 5% increase over figure for 2000 and a 45% increase since 1992 (FAO , 2004). China, Thailand, Norway, Japan, USA and Spain are major players in fish trade. Expansion of fish production, WTO agreements and decrease transportation cost, have enlarged the fish trade. In 2005-06, India's fish export was estimated to be amount Rs.7245 crores (US \$ 1644 million), more than 700% higher than in 1990-91(893 crores) (SEAI, 2006). But still, India is far away compared to other countries like China, Thailand and Norway. Fish export to China amounted to US\$ 4.5 billion, Thailand : US\$ 3.7. billion and Norway :US\$ 3.6. billion in 2002 as per FAO (FAO, 2004).

It is reported that fish processing industry has comparative cost advantage over the world. Despite fish processing units are facing scarcity of raw, material, steep hike in fuel price, continuously increasing raw-material price, rupee appreciation, low price realisation in international markets, disruption in power supply, high ocean freight, lack of skilled personnel and keen competition from both small and large companies etc. It is imperative from above problems that condition presently is very miserable and future will not be good. The fish processing industry is a very sensitive and high labour industry and if left unattended may at a social/economical emergency for the people residing on coastal belt of Gujarat state and country.

The study reveals that there are some areas where proper steps need to be taken, for establishing successful fish processing businesses. In consideration of

the prevailing scenario in Gujarat's fish processing industry, the study provides recommendations to foster growth of fish processing. Recommendations are as follows:

1. The nets that are used presently have very narrow gaps. Instead it must be made mandatory that nets with enlarged gaps be used. So that the baby fishes escape from harvesting. This will help in the promotion of future production of fish.
2. The ban on fishing for 67 days presently be further extended by 30 additional days. So that the fishes grow adequately during the breeding season.
3. Aquaculture and inland should be promoted as future production will come from these two sources. Though the land is being provided presently by the government for the purpose but more resources and support in the form of infrastructure and training specially easy availability of seed could be provided for the same.
4. The number and size of the foreign vessels should be regulated.
5. State government along with MPEDA can undertake programmes for creating awareness about the use of efficient fishing technology which is presently not widely used.
6. Easy availability of loans and credit facilities is a pre-requisite for the growth of industry. MPEDA and SEAI can act as mediator between the industry and financial institutions.
7. MPEDA can develop a department for providing marketing information to the fish processing units. This will help the industry updated with international scenario.
8. Effective subsidy programmes specially for VAP could be adopted instead of the existing subsidy on traditional products. This will further export promotion.

9. Adoption of quality standards be made mandatory. Relevant policy measures could be adopted in this direction by the government. This could be in the form of special subsidy for firms with specified quality standards.
10. R & D in the area of energy efficiency and conservation be adopted.
11. MPEDA should undertake the training or OJT could also be undertaken either on special training program for the workers at different levels or efforts could be made by SEAI
12. Subsidy on electricity would help the fish processing units in economising their cost of freezing.
13. SEAI/MPEDA can work out the mode of internal transport system for economising the cost.

Along with these recommendations what is important is the effective implementation of the schemes and programmes for a bright future of the industry.